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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,683	02/08/2001	A. John Appleby	TAMK:224 12740.0224.NPUS	4809

7590

01/03/2003

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EXAMINER

WILLS, MONIQUE M

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 01/03/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/779,683

Applicant(s)

APPLEBY ET AL.

Examiner

Wills M Monique

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-13 & 26-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "high" in claims 12 and 26 is a relative term which renders the claim indefinite. The term "high" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. How high is high?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fronk et al. U.S. Patent 6,372,376 and further in view of Dufner et al. U.S. Patent 6,024,848.

Fronk teaches an electrically conducting fuel cell component comprising a metal flow field 60 having a plurality of grooves 66 known as flow fields (col. 4, lines 1-5) and made of aluminum (col. 5, lines 10-15). The flow field is bonded to an intermediate layer 94 comprising a plurality of conductive particles dispersed through an acid-resistant polymer matrix (col.4, lines 50-65). The polymer comprises fluoro-elastomers such as polyvinylidene fluoride (col.5, lines 1-7). The conductive polymers may be selected from graphite, carbon and nickel (col.4, lines 50-60). The flow field also comprises a protective layer comprising nickel and other metal oxides (col.7, lines 5-25). The intermediate layer 94 is bonded to the flow field, and an electrode is bonded to the intermediate layer (col.4, lines 5-20 and col. 6, lines 1-10). The electrode includes a polymer electrolyte and electrocatalyst (col. 1, lines 15-25).

Fronk does not expressly disclose that the flow field is porous. The reference is silent to a protective layer comprising tin oxide and said oxide having a thickness between 1-5 microns.

Dufner teaches the employment of porous plates to decrease weight of the cell to meet specific operating demands (col.2, lines 40-50). The reference also teaches that it is well known in the art to employ tin oxide (col.8, lines 45-50) with a thickness of 0.1 to 1.0 microns (col. 7, lines 45-65). The tin oxide minimizes excess accumulation of liquid

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water at the cathode thereby restricting access of the gaseous oxidant to the cathode (col. 2, lines 55-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the porous flow files of Dufner in the cell of Fronk to decrease weight of the cell to meet specific operating demands.

Regarding the tin oxide, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ tin oxide coating on the flow field of Fronk, because Dufner teaches that it minimizes excess accumulation of liquid water at the cathode thereby restricting access of the gaseous oxidant to the cathode.

Conclusions

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (703) 305-0073. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Patrick Ryan, may be reached at 703-308-2383.

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The unofficial fax number is (703) 305-3599. The Official fax number for non-final amendments is 703-872-9310. The Official fax number for after final amendments is 703-872-9311.

Mw

12/27/02



Patrick Ryan
Supervisory Patent Examiner
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